

Industry Perspective for Cannon Artillery

Critical Technologies for Future Artillery Systems

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Current Combat System Deficiencies

(as Defined by the Army)

- **Strategically Non-Deployable**
 - **Brigade 96 Hours**
 - **Division - 120 Hours**
 - **5 Divisions - 30 Days**
- **Lack of Survivable, Small, Lightweight Platforms**
- **Insufficient Weapon Lethality**
- **Unable to Fight Upon Arrival**
- **Excessive Latency from Decision to Action**
- **Need to Maintain OPTEMPO for 5 Days Without Resupply**
- **Too Costly To Sustain - 33-50% Less Desired**



Heavy Crusader

55+ Tons

8-12 Rounds Per Minute

1500 Horsepower Diesel

**Protected With Integrated
Armor**

Tracked Resupply Vehicle

1 Per C-5

60 Rounds On Board

Lightweight Crusader

40 Tons

8-12 Rounds Per Minute

New Engine

Armor Kits

**Mix of Tracked and
Wheeled Resupply Vehicles**

1 Set Per C-5/1 Per C-17

> 48 Rounds On Board

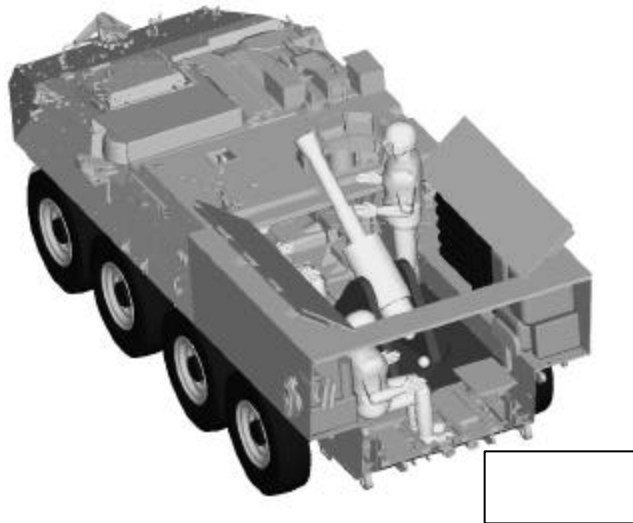


Interim Brigade Combat Team

Mortar Carrier

CURRENT SOLICITATION

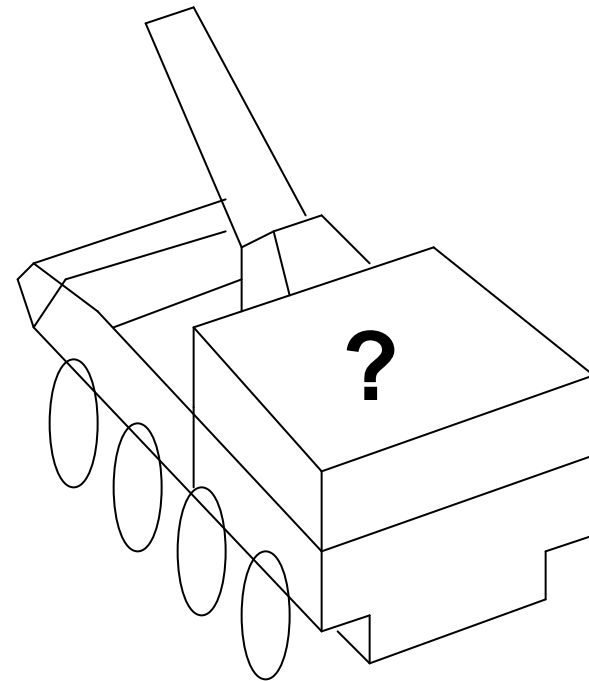
- Mounted 120mm Mortar (Dismountable)
- Dismountable 81mm Mortar or 60 mm Mortar



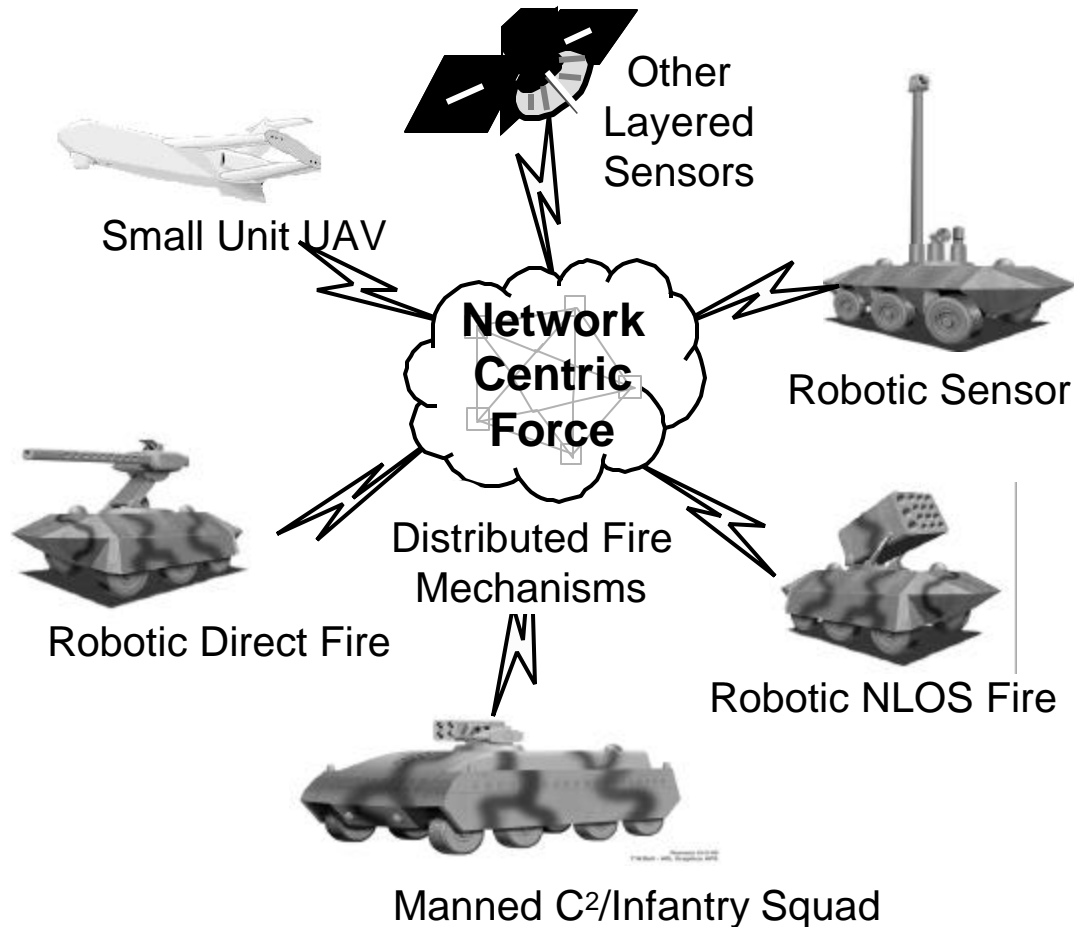
Artillery Platform

FUTURE PROCUREMENT

- 155 mm Howitzer
- 20 Ton Platform



Future Combat System Operational Force



- **Strategically Responsive - Rapid Deployment**
- **Overmatch Against a Full Spectrum of Threats**
- **Network Centric - Robust, Dominant C4I Architecture - Hemispheric Situation Understanding**
- **Precision Engagement and Lethality**
- **Reduced Sustainment**

Future Combat System Technologies



Army Science Board/DARPA Senior Advisory Board Recommended Concentration Areas

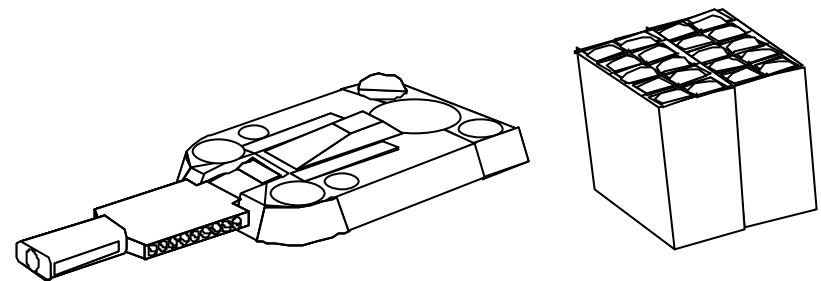
Critical Technologies for Future Artillery Systems

Propulsion (Delivery Mechanism)

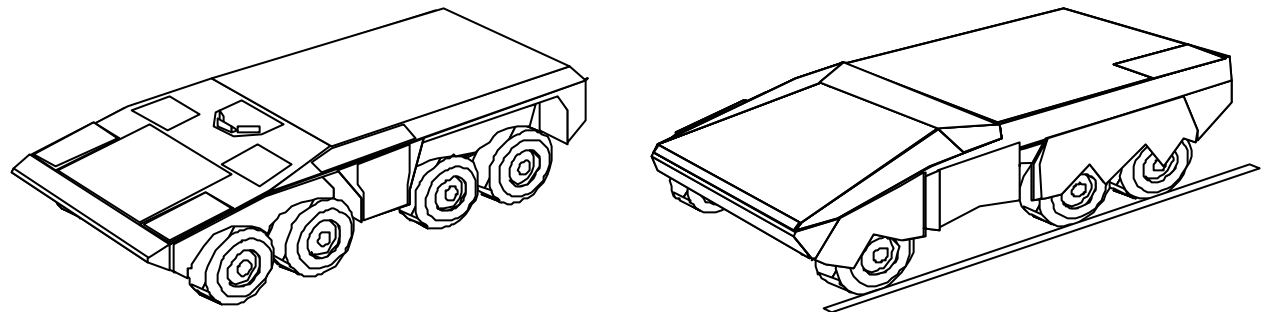
Projectile (Kill Mechanism)

Protection (Survivability)

Platform (Mobility)



Example Concepts for Illustration Purposes Only



Critical Technologies for Future Artillery Systems

Propulsion (Delivery Mechanism)

Projectile (Kill Mechanism)

**Focus for
Future
Artillery**

Protection (Survivability)

Platform (Mobility)

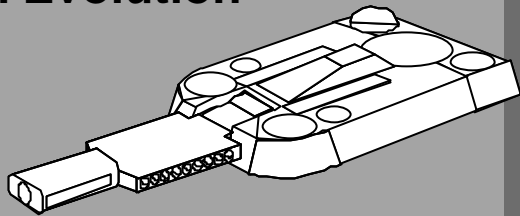
- Use Common FCS Platform
- Probably Robotic

- Common to Other FCS Platforms
- Active Protection
- Sensors
- Seamless C2 / SA Systems
- Armor / Materials

Propulsion Technology Viability

Chemical Energy Propulsion

- Legacy Mechanism
- Incremental Evolution



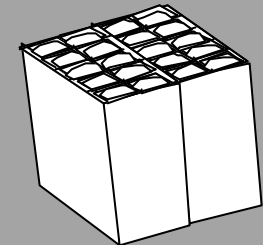
Electro-Thermal Chemical

- Demonstrated
- Reachable in 5 Year Time Frame with Investment
- Needs an Active Development Program
- Energy Management Critical

Electro-Magnetic

- Technology Maturation Challenge
- Rail Implementation
- Power Density of Generation and Storage Devices
- Throw Weight

- Rockets / Missiles
- Legacy Mechanism
- Mission Adaptation



Propulsion

Projectiles

Technology Viability

Ballistic -Dumb

- Legacy Inventory
- Incremental Evolution

Ballistic - Smart

- Legacy Inventory
- Incremental Evolution

Autonomous Terminal Performance

- Munition Versus Target Cost
- Sensor Technology Challenge

Critical Technologies for Future Artillery Systems

CONCLUSIONS

- **Current Technology Development Efforts Will Continue to Provide Incremental Improvement**
- **Major Investment Needed to Make Revolutionary Technologies Available for FCS**
- **Time, As Well As Money, Is An Issue**